

(provitamin D3), wherein said method comprises contacting cholesterol substrate with the substantial pure Δ_7 cholesterol desaturase enzyme from Ciliata phylum microorganism of claim 5.

24. (new) The method according to claim 23, wherein the cholesterol substrate is selected from the group consisting of pure cholesterol, cholesterol-containing products and cholesterol enriched fractions.

25. (new) The method according to claim 23, wherein the ciliate is selected from the group consisting of *Paramecium*, *Tetrahymena* and *Colpidium*.

26. (new) The method for producing Δ_7 , 22 bis dehydrocholesterol, wherein said method comprises contacting cholesterol substrate with a substantial pure Δ_7 cholesterol desaturase and substantial pure Δ_{22} cholesterol desaturase enzymes of claims 5 and 8.

27. (new) The method according the claim 26, wherein the cholesterol substrate is selected from the group consisting of pure cholesterol, cholesterol-containing products and cholesterol enriched fractions.